

Work Order ID 48446A



Page 1

July 6, 2009 2:18:11 PM

Item ID: D205-634-041

Accept



Setup Start



Revision ID: D

Stop



Item Name: Replacement Skidtube

Start Date: 15/07/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 03/08/2009 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan:

Date:

Tooling:

Date:

Stop



QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D2580

Rev D

100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy D205-634 bluefile & type labels per PPP D205-634-041 CHG002

N/A

110

0.00



Skidtubes

Skidtubes

Memo

0.00

Skidtubes

1- Inspect mat'l D2500-1-190 for damage [12-Cut D2500-1-190 per
Dwg D2580 if necessary Deburrr ends [13-Acid etch and Alodine tube per QSI
005 4.1

120

0.00



QC3- Inspect Part Finish

QC

Memo

0.00

Quality Control

STEP 2
on EST: 10023
LOSS
ca/07/13

Work Order ID 48446A

July 6, 2009 2:18:11 PM



Page 2

Item ID: D205-634-041

Accept



Setup Start



Revision ID: D

Stop



Item Name: Replacement Skidtube

Start Date: 15/07/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 03/08/2009 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



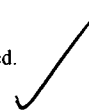
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 	Skidtubes	0.00							
Skidtubes	Memo 1-Drill pilot holes using drill jig DT 8149(Do not use cutting fluid)2-Open holes to 0.500" as per Dwg D2580without cutting fluid3-Countersink holes as per Dwg D2580without cutting fluid4-Deburr and blow out all chips from inside of tube5-Bond web in	0.00							
140 	BENDING MACHINE - SKIDTUBES	0.00							
CNC Bend 1 CNC Delta 100 Bender	Memo 1-Bend as per program D2580.C on CNC Bender and Folio FT009 2-Cut tubes as per Dwg. D2580	0.00							
150 	Skidtubes	0.00							
Skidtubes	Memo 1-Deburr ends 2-Prepare tube for welding, remove alodine as required.	0.00							

Step 2 on
CNC Wp Est: 10023
11/09/07/13



Work Order ID 48446A

July 6, 2009 2:18:11 PM

Page 3

Item ID: D205-634-041

Accept

Revision ID: D

Item Name: Replacement Skidtube

Start Date: 15/07/2009 Start Qty: 1.00

Required Date: 03/08/2009 Req'd Qty: 1.00

Reference:

Cust Item ID:

Customer:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

160

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

170

Skidtubes

0.00



Skidtubes

Memo

0.00

Skidtubes

2-Weld step D2576 as per Dwg. D2580 and QSI 004 ☐ A/R Aluminum Rod ☐ 3-Weld crossbolt spacers D2579 as per Dwg. D2580 and QSI 004. ☐ For D2579 spacers, weld one side, pass 3/8" drill, weld other side, pass 3/8" drill ☐ A/R Alumin

180

QC10- Inspect visual per QSI004- ground welds

0.00



QC

Memo

0.00

Quality Control

Work Order ID 48446A

July 6, 2009 2:18:11 PM

Page 4

Item ID: D205-634-041

Accept

Revision ID: D

Item Name: Replacement Skidtube

Start Date: 15/07/2009 Start Qty: 1.00

Required Date: 03/08/2009 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

190

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

200

Pressure Wash per QSI005 4.3

0.00



HandFinish

Memo

0.00

Hand Finishing

210

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00



Powdercoat

Memo

0.00

Powder Coating

START TIME: _____ OVEN TEMPERATURE: _____

FINISH TIME: _____

Work Order ID 48446A

July 6, 2009 2:18:11 PM

Page 5

Item ID: D205-634-041

Accept

Revision ID: D

Item Name: Replacement Skidtube

Start Date: 15/07/2009 Start Qty: 1.00

Required Date: 03/08/2009 Req'd Qty: 1.00

Reference:

Cust Item ID:

Customer:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run

Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

220

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

230

HandFinishing

0.00



HandFinish

Memo

0.00

Hand Finishing

1-Install inserts & wearplates & Gaskets as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates ☐ A/R Sikaflex-291 ☒
☐ Sikaflex expire date: ☐ 12-Coat D2594-3 O' rings with Petroleum Jelly and instal

240

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

Handwritten signature and date: 809/07/02

Work Order ID 48446A

July 6, 2009 2:18:11 PM



Page 6

Item ID: D205-634-041

Accept



Setup Start



Revision ID: D

Stop



Item Name: Replacement Skidtube

Start Date: 15/07/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 03/08/2009 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan:

Date:

Tooling:

Date:

Stop



QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

250

0.00



Packaging

Packaging

Memo

0.00

Identify and pack for shipping as per PPP D205-634

041 Location: _____ □ PPP Rev: _____

Packaging

260

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

Rec'd 7/7/09

MF 09-07-08

Picklist Print

Page 1

July 6, 2009 2:18:10 PM

Work Order ID: 48446A

Parent Item: D205-634-041RevD

Parent Item Name: Replacement Skidtube

Comments:

Start Date: 15/07/2009

Required Date: 03/08/2009

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D2500-1-190RevU/R		Manufactured	No			110	Each	0.0000	1.0000			
Ext'n - I Beam Tube 4"												
D2594-1RevC		Manufactured	No			110	Each	742.0000	16.0000			
Plug, 205 Skidtube												

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

742

42221

16

42807

92

43884

129

46435

3

47251

502

D2596RevD Manufactured No

170 Each

0.0000 1.0000

Step 2 on Ciss who

Web, 205 Skidtube

ALS7-1032-130 Purchased No

230 Each

3,926.000 50.0000

Insert

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

3926

108606

52

111529

1874

111779

2000

Picklist Print

July 6, 2009 2:18:10 PM

Work Order ID: 48446A

Parent Item: D205-634-041RevD

Parent Item Name: Replacement Skidtube


Comments:

Start Date: 15/07/2009

Required Date: 03/08/2009

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
✓ AN3-5A  Bolt		Purchased	No			230	Each	2,566.000	2.0000	✓		

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST

2566

100188


248

105057

2246

15205

72

✓ AN3C4A  BOLT		Purchased	No			230	Each	324.0000	50.0000	✓		
---	--	-----------	----	--	--	-----	------	----------	---------	---	--	--

Warehouse Loc Qty Loc Code

Location


Main Warehouse

ST

324

112082

324

✓ AN960C10L  washer		Purchased	No			230	Each	5,096.000	50.0000	✓		
--	--	-----------	----	--	--	-----	------	-----------	---------	---	--	--

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST

5096

103585

100

112116

4996

Picklist Print

July 6, 2009 2:18:10 PM

Work Order ID: 48446A

Parent Item: D205-634-041RevD

Parent Item Name: Replacement Skidtube


Comments:

Start Date: 15/07/2009

Required Date: 03/08/2009

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
✓ AN960JD10L  Washer		Purchased	No			230	Each	7,270.000	2.0000	✓		

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST	7270	
101291	16	
104885	153	
105793	236	
109632	1862	
110985	5000	
18235	3	

✓ D2594-3RevC

Manufactured

No

230

Each

948.0000

16.0000



O-Ring, 205 Skidtube

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST	948	
27168	44	
29908	904	

Picklist Print

July 6, 2009 2:18:10 PM

Page 4

Work Order ID: 48446A

Parent Item: D205-634-041RevD

Parent Item Name: Replacement Skidtube



Comments:

Start Date: 15/07/2009

Required Date: 03/08/2009

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
✓ D2855RevA 		Manufactured	No			230	Each	20.0000	1.0000 	✓		
Cap												

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST

20

10360

2

35663

7

41340

1

42343

6

42806

4

✓ D3564-11RevD

Manufactured

No

230

Each

10.0000

1.0000 ✓



Wearshoe

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST

10

45823

1

47432

9

July 6, 2009 2:18:10 PM

Shop Packet Print

Page 4

Picklist Print

July 6, 2009 2:18:10 PM

Page 5

Work Order ID: 48446A

Parent Item: D205-634-041RevD

Parent Item Name: Replacement Skidtube


Comments:

Start Date: 15/07/2009


Required Date: 03/08/2009

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
✓ D3564-13RevD  Wearshoe		Manufactured	No			230	Each	23.0000	1.0000 ✓			

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST	23	
45409	3	
46495	10	
47867	10	

✓ D3564-5RevD  Wearshoe		Manufactured	No			230	Each	13.0000	1.0000 ✓			
--	--	--------------	----	--	--	-----	------	---------	----------	--	--	--

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
OFFSHORE		
FG	2	
34806	2	
Main Warehouse		
ST	11	
45824	1	
47433	1	
48164	9	

July 6, 2009 2:18:10 PM

Shop Packet Print

Page 5

Picklist Print

July 6, 2009 2:18:10 PM

Work Order ID: 48446A



Parent Item: D205-634-041RevD



Parent Item Name: Replacement Skidtube

Start Date: 15/07/2009

Required Date: 03/08/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
✓ D3564-9RevD Wearshoe		Manufactured	No			230	Each	7.0000	1.0000 ✓			

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST

7

44659

1

45825

1

47316

5

✓ D3566-13RevC

Manufactured

No



Gasket

230

Each

34.0000

1.0000 ✓



Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

34

45717

1

46889

7

47435

8

48166

18

Picklist Print

July 6, 2009 2:18:11 PM

Work Order ID: 48446A

Parent Item: D205-634-041RevD

Parent Item Name: Replacement Skidtube


Comments:

Start Date: 15/07/2009

Required Date: 03/08/2009

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
✓ D3566-1RevC  Gasket		Manufactured	No			230	Each	15.0000	2.0000 ✓			

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST

15

46349

1

47434

2

48165

12

✓ D3566-5RevC  Gasket		Manufactured	No			230	Each	25.0000	1.0000 ✓			
--	--	--------------	----	--	--	-----	------	---------	----------	--	--	--

Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST

25

36113

1

46186

1

47318

1

48167

22

Date: Wednesday, 10/06/2009 9:56:57 AM
 User: Julie Dawson

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : SKID TUBE ASSEMBLY
 Job Number : 48446A
 Estimate Number : 10023
 P.O. Number :
 This Issue : 10/06/2009 S.O. No. :
 Prsht Rev. : NC Part Number : D205634041
 First Issue : / / Type : SKIDTUBES Drawing Number : D2580 REV D
 Previous Run : 48445A Project Number : N/A
 Material :
 Due Date : 19/06/2009 Qty: 1 Um: Each
 Written By :
 Checked & Approved By : JUD 09.06.10
 Comment : Est Rev:N 02.08.28 FP was QC5 in Step 27; Added QC5 to Step 30 KJ
 Est Rev. O 06.02.28 Added paperwork EC
 Est Rev:P 07-07-09 SS Wearplates & Gaskets JLM
 Est Rev:Q 09-03-19 rev.f as per IIN DD verified by:EC

Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 DC DOCUMENT CONTROL



Comment: DOCUMENT CONTROL

Photocopy D205-634 bluefile & type labels per PPP D205-634-041 CHG002

N/A

2.0 D25801 Drilling Detail, 205 Skidtube



110,120,180



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)
 205 Skidtube bent detail

B 48455

FT 09 06 12

3.0 BENDING BENDING MACHINE - SKIDTUBES



Comment: BENDING MACHINE

1-Bend as per program D2580.C on CNC Bender and Folio FT009

2-Cut tubes as per Dwg. D2580

FT 09 06 12

4.0 SKIDTUBES 1 SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Deburr ends

2-Prepare tube for welding, remove alodine as required.

3- Scribe Batch # on the aft end inside of tube

BF 09/06/10

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Wednesday, 10/06/2009 9:56:57 AM
User: Julie Dawson

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SKID TUBE ASSEMBLY

Job Number: 48446A

Part Number: D205634041

Job Number:



Seq. #:	Machine Or Operation:	Description :
---------	-----------------------	---------------

5.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

509/06/16 @

6.0

D25763

Step (maching detail)



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
1	D2576-3	Step	43504

BE 09/06/16

7.0

D2579

Crossbolt Spacer



Comment: Qty.: 20.0000 Each(s)/Unit Total : 20.0000 Each(s)

Pick:

Qty	Part Number	Description	Batch
20	D2579	Spacers	46956

BE 09/06/16

8.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LARGE FABRICATION RESOURCE 1

2-Weld step D2576 as per Dwg. D2580 and QSI 004

A/R

Aluminum Rod

m111679

BE 09/06/16

3-Prep per QSI 005 and weld crossbolt spacers D2579 as per Dwg. D2580, QSI 004.

For D2579 spacers, weld one side, pass 3/8" drill, weld other side, pass 3/8" drill

A/R

Aluminum Rod

m111679

BE 09/06/16

4-Grind welds as per Dwg D2580 Grind flush ridge made from bending

5-Drill holes for wearplates using DT 8217 & DT8937 Open holes to 19/64", adjust stopper not to hit web. Debur

6-Counterbore crossbolt spacers to 7/16" ID x 1.0" deep as per Dwg D2580. Debur holes

7-Drill pilot holes for aft cap using DT 8215 Open holes to 0.208". Debur

8-Drill pilot holes for Tow ring using DT8091, open to .640" and Debur

M/S
09-06-17 @

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Wednesday, 10/06/2009 9:56:57 AM
User: Julie Dawson

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SKID TUBE ASSEMBLY

Job Number: 48446A

Part Number: D205634041

Job Number:



Seq. #:

Machine Or Operation:

Description :

9.0

QC10

VISUAL INSPECTION OF GROUND WELDS



Comment: VISUAL INSPECTION OF GROUND WELDS

S 09/06/17 (C)

10.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

S 09/06/17 (C)

11.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Pressure wash as per QSI 005

BR 09-06-17 (D)

12.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

START TIME: 7:30am

OVEN TEMPERATURE: 320°F

FINISH TIME: 8:00am

BR 09-06-18 (X1)

13.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

BR 09-06-18 (D)

14.0

✓

D2855

Cap



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Cap

Batch: B428000

UMD 09/07/01

15.0

✓

AN35A

Bolt



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Bolt

Batch: M100/88

UMD 09/07/01





W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

W/O: 48446A		EST: 10023		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE			By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
09-07-01 09-07-01		Pull from stock D2855 B42806. SAND LIGHTLY, RECOAT WHITE SANDTEX.			BR BR	09-07-01 09-07-01	01 1		
09-07-01 09-07-01	7.0 7.1	Repowder white M111472 QC3. AS PER PART QSI			BR BR	09-07-01 09-07-01	(X)1 1		

Part No: D205-634-041 PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Wednesday, 10/06/2009 9:56:57 AM
User: Julie Dawson

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SKID TUBE ASSEMBLY

Job Number: 48446A

Part Number: D205634041

Job Number:



Seq. #:

Machine Or Operation:

Description :

16.0



AN960JD10L

Washer



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Washer

Batch: m1091632

UMD 09/07/01

17.0



ALS71032130

Insert



Comment: Qty.: 50.0000 Each(s)/Unit Total : 50.0000 Each(s)

Insert

Batch: m110511

UMD 09/07/01

18.0



AN3C4A

BOLT



Comment: Qty.: 50.0000 Each(s)/Unit Total : 50.0000 Each(s)

BOLT

Batch: m112082

UMD 09/07/01

19.0



AN960C10L

washer



Comment: Qty.: 50.0000 Each(s)/Unit Total : 50.0000 Each(s)

washer

Batch: m112114

UMD 09/07/01

20.0



D356613

Gasket



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

GASKET

Batch: B48166 B416889

UMD 09/07/01

21.0



D35665

Gasket



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

GASKET

Batch: B48167

UMD 09/07/01

22.0



D35661

Gasket



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

GASKET

Batch: B48165

UMD 09/07/01

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SKID TUBE ASSEMBLY

Job Number: 48446A

Part Number: D205634041

Job Number:



Seq. #:

Machine Or Operation:

Description :

23.0

D356413

Wearshoe



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

WEARSHOE

Batch: B47867

UMD 09/07/01

24.0

D356411

Wearshoe



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

WEARSHOE

Batch: B47432

UMD 09/07/01

25.0

D35649

Wearshoe



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

WEARSHOE

Batch: B47316

UMD 09/07/01

26.0

D35645

Wearshoe



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

WEARSHOE

Batch: B40164

UMD 09/07/01

27.0

D25943

O-Ring, 205 Skidtube



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

O-Ring

Batch: B29908

UMD 09/07/01

28.0

D25941

Plug, 205 Skidtube



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

Plug

Batch: B43884

UMD 09/07/01

29.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

1-Install inserts & wearplates & Gaskets as per Dwg. D2580. Use a drop of Sikaflex on insert holes before installing wearplates

A/R

Sikaflex-291

M11557

UMD 09/07/01

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Wednesday, 10/06/2009 9:56:57 AM
User: Julie Dawson

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SKID TUBE ASSEMBLY

Job Number: 48446A

Part Number: D205634041

Job Number:



Seq. #:

Machine Or Operation:

Description :

Sikaflex expire date: 10/01

2-Coat D2594-3 O' rings with Petroleum Jelly and install on D2594-1 plugs as per Dwg D2580

3-Inspect for foreign object per QSI 024

4-Install 2855 Aft Cap as per Dwg D2580 and seal Fwd Step & Aft Cap with Sikaflex. Clean excess adhesive

A/R Sikaflex-291 M111557

Sikaflex expire date: 10/01

5-Wing Walk as per Dwg D2580 and QSI 005 4.4

Batch: M114013

UMD 09/07/01

(X1)

30.0

QC5

INSPECT WORK TO CURRENT STEP



02/07/02



Comment: Inspect Aft Cap, Fwd Step and Wing Walk of work to Current Step Inspect for Foreign objects per QSI 024

31.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D205-634-041

Location: _____

PPP Rev: _____

PP 48446 09/07/01

32.0

QC21

FINAL INSPECTION/W/O RELEASE



09/07/09

Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART

DESIGN #	DRAWN BY RH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. D2580	REV. D SHEET 1 OF 3
DATE 07.02.27		TITLE 205 SKIDTUBE ASSEMBLY	SCALE NTS
A	96.09.16	NEW ISSUE	
B	96.12.02	AS MANUFACTURED	
C	98.08.26	REDRAWN, INCLUDED DEO 9094/9097	
D	07.02.27	CHANGE TO SS WEARPLATES AND GASKETS, INCLUDE DEO 9124/9183	

RELEASED
07-06-28 #

QTY -041	QTY -045	Part Number	Description
X		D2580-041	SKIDTUBE ASSEMBLY
	X	D2580-045	SKIDTUBE ASSEMBLY
1	1	D2500-1-190	EXTRUSION
1	1	D2576-3	STEP
20	24	D2579	CROSS BOLT SPACER
16	16	D2594-1	PLUG
16	16	D2594-3	O-RING
1	1	D2596	205 WEB
1	1	D2855	AFT CAP
1	1	D3564-5	WEARSHOE
1	1	D3564-9	WEARSHOE
1	1	D3564-11	WEARSHOE
1	1	D3564-13	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
1	1	D3566-13	GASKET
50	50	ALS7-1032-130 or AKS7-1032-130 or AKS4-1032-130 or AELS-1032-130	INSERT
50	50	AN3C4A	BOLT
2	2	AN3-5A	BOLT
50	50	AN960C10L	WASHER
2	2	AN960JD10L	WASHER

GENERAL NOTES:

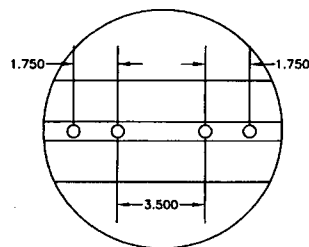
- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) ALL DIMENSIONS ARE IN INCHES
- 3) INSERT D2596 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241 ADHESIVE PER DART QSI 015 BEFORE BENDING. ENSURE HOLES LINE-UP.
- 4) BEND AS A SMOOTH RADIUS STARTING WITH A MAXIMUM CENTERLINE RADIUS OF 60 AND ENDING WITH A MINIMUM RADIUS OF 30. A MAXIMUM REDUCTION OF 0.200 IN DIAMETER IS ALLOWABLE IN THE BENT PORTION OF THE TUBE.
- 5) USE DART DRILL TEMPLATE TD2577-205 TO LOCATE AND DRILL $\varnothing 0.297$ HOLES FOR COPY WEARSHOE INSERTS. INSTALL ALS7-1032-130 PER SECTION D-D (50 PLACES) AFTER TURN TO FINISH. INSTALL AN3C4A BOLTS AND AN960C10L WASHERS WITH SIKAFLEX-241/291.
- 6) WELDING TO BE DONE PER DART QSI 004.
- 7) FINISH:
SEE NOTES ON
PAGE 2 FOR D2580-041 AND
PAGE 3 FOR D2580-045
- 8) INSERT D2594-1 PLUG C/W D2594-3 O-RING IN HOLES MARKED 'P' (BOTH SIDES OF TUBE) AFTER FINISH (16 PLACES).

UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
87460A

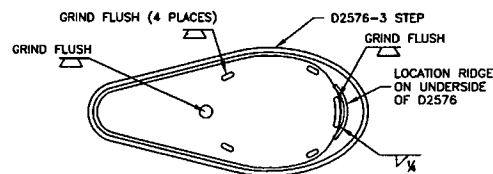
Copyright © 1996 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

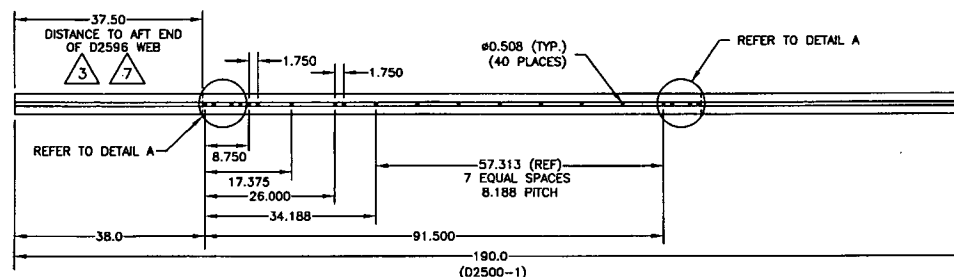
DETAIL A
SCALE 5:24



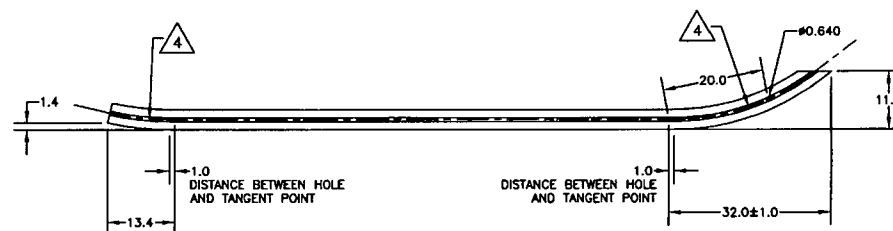
DETAIL B
SCALE 5:24



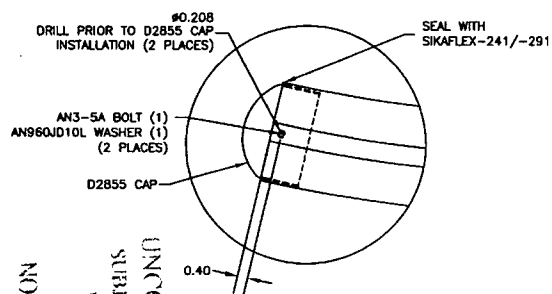
D2580-1 DRILLING DETAIL



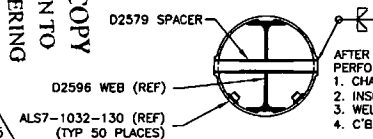
D2580-1 BENDING AND CUTTING DETAIL



DETAIL C
SCALE 5:24

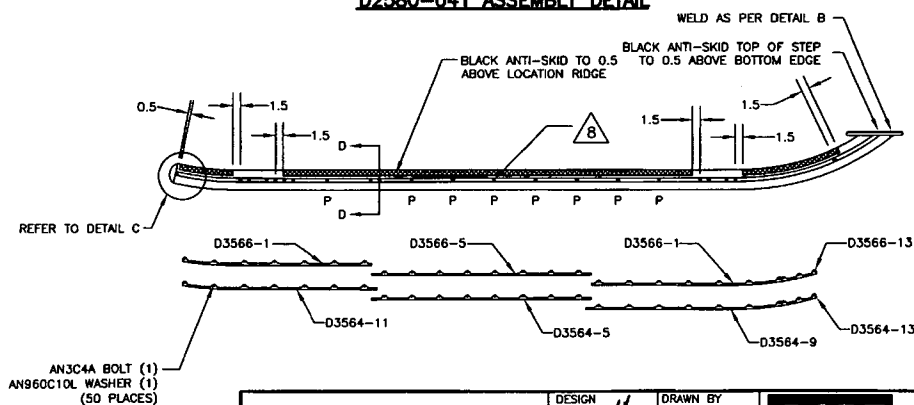


SECTION D-D
SCALE 5:24



AFTER DRILLING AND BENDING ASSEMBLY PERFORM THE FOLLOWING FOR #0.508 HOLES ONLY:
1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C'BORE D2579 SPACER TO #0.437 X 1.00 DEEP

D2580-041 ASSEMBLY DETAIL



D2580-041 NOTES

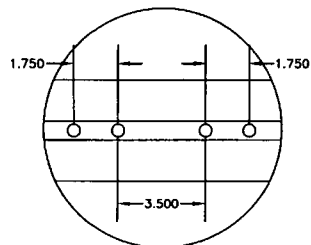
- i) FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB
POWDER COAT ASSEMBLY GLOSS WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4

COPYRIGHT © 1996 BY DART AEROSPACE LTD.

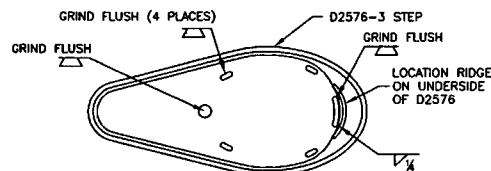
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

DESIGN	DRAWN BY	DART	DART AEROSPACE LTD. MARKESBURY, ONTARIO, CANADA
CHECKED	APPROVED	DRAWING NO. D2580	REV. D SHEET 2 OF 3
DATE 07.02.27		TITLE 205 SKIDTUBE ASSEMBLY	SCALE 1:24

DETAIL E
SCALE 5:24

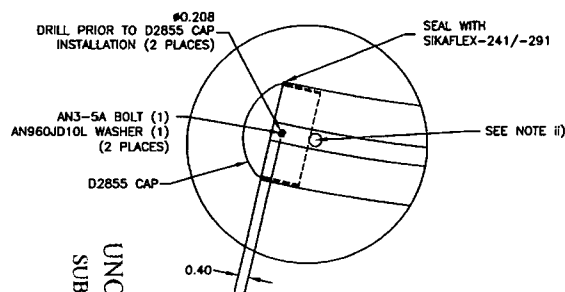


DETAIL F
SCALE 5:24

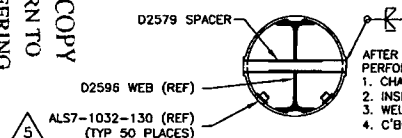


RELEASED
07.06.28

DETAIL G
SCALE 5:24

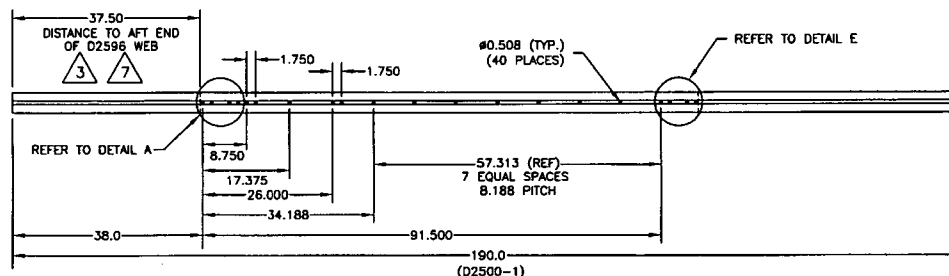


SECTION H-H
SCALE 5:24

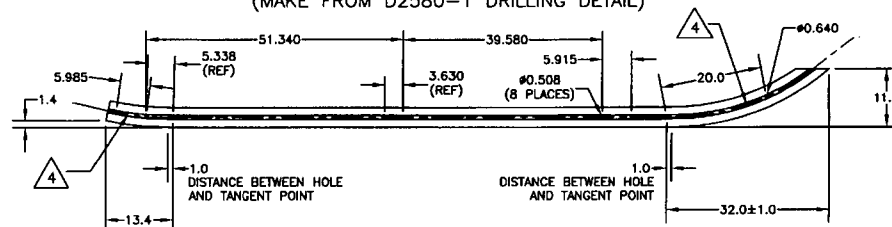


AFTER DRILLING AND BENDING ASSEMBLY PERFORM THE FOLLOWING FOR #0.508 HOLES ONLY:
1. CHAMFER HOLE 0.050 X 45°
2. INSERT D2579 SPACER (20 PLACES)
3. WELD INTO PLACE AND GRIND FLUSH
4. C'BORE D2579 SPACER TO #0.437 X 1.00 DEEP

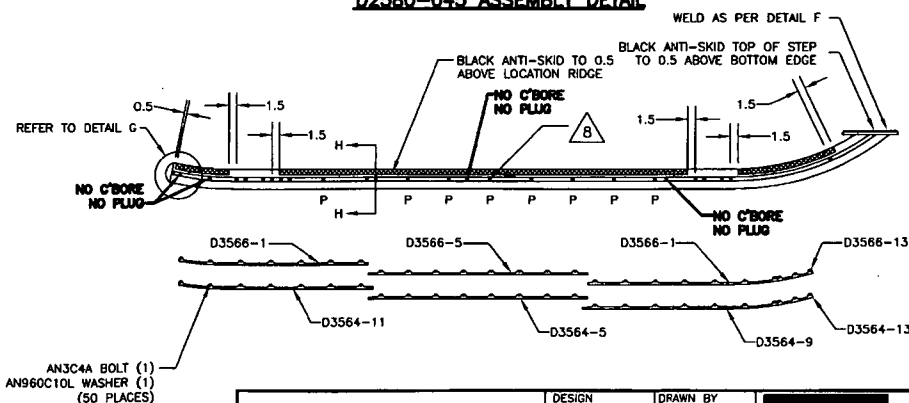
D2580-1 DRILLING DETAIL



D2580-5 BENDING AND CUTTING DETAIL
(MAKE FROM D2580-1 DRILLING DETAIL)



D2580-045 ASSEMBLY DETAIL



D2580-045 NOTES

- FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 PRIOR TO INSERTING D2596 WEB POWDER COAT ENTIRE ASSEMBLY GREEN (REF. 4.3.5.8) PER DART QSI 005 4.3 BLACK ANTI-SKID PAINT AS INDICATED PER DART QSI 005 4.4
- IT IS ACCEPTABLE TO GRIND A RELIEF IN THE D2855 AFT CAP TO PREVENT INTERFERENCE WITH THE SPACER AT THIS LOCATION

COPYRIGHT © 1996 BY DART AEROSPACE LTD.

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

DESIGN RH	DRAWN BY RH	DART	DART AEROSPACE LTD. WARRICKSLEY, ONTARIO, CANADA
CHECKED H	APPROVED H	DRAWING NO. D2580	REV. 0 SHEET 3 OF 3
DATE 07.02.27	TITLE 205 SKIDTUBE ASSEMBLY	SCALE 1:24	

NO. 202

AWS D17.1.2001
QUALIFICATION TEST RECORD

Name: Berley Elliott
Job number: 48448A
Part number: 0805634 041
Description: 205 skid tube
Welding Process: Tig[☒] Mig[]
Base material: Aluminium
Current: AC[] DC[☒]

TEST REQUIREMENTS AND RESULTS

Visual: pass[☒] fail[]
Penetration: pass[☒] fail[]

UNACCEPTABLE

Cracks: pass[☒] fail[]
Undercut: pass[☒] fail[]
Pin holes: pass[☒] fail[]
Overlap (cold lap): pass[☒] fail[]
Porosity (surface): pass[☒] fail[]
Coloration: pass[☒] fail[]

Qualifier P. D. Dal Date of Test Coupon 09-06-17
Welder Berley Elliott Date of Test Coupon 09-06-17

The above named individual is qualified in accordance with AWS D17.1.2001 to weld